

What is claimed is

1. A DNA vaccine including plasmid containing 2-6 kb of the total antigen gene of hepatitis C virus (HCV).
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2. The DNA vaccine as set forth in claim 1, wherein the DNA vaccine includes plasmid containing 2-4 kb of the total antigen gene of HCV.
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3. The DNA vaccine as set forth in claim 1, wherein the DNA vaccine includes all of the 1st plasmid containing core, E1 and E2 genes, the 2nd plasmid containing NS3 and NS4 genes, and the 3rd plasmid containing NS5 gene.
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4. The DNA vaccine as set forth in claim 3, wherein the 1st plasmid contains core in which 35-40 amino acids of N-terminal region are eliminated.
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5. The DNA vaccine as set forth in claim 4, wherein the 1st plasmid contains core in which 40 amino acids of N-terminal region are eliminated.
- 25 6. The DNA vaccine as set forth in claim 3, wherein

the E2 gene of the 1st plasmid contains transmembrane domain of E2 protein.

7. The DNA vaccine as set forth in claim 3, wherein
5 the 1st plasmid contains a base sequence represented by SEQ. ID. No 50.
8. The DNA vaccine as set forth in claim 7, wherein
10 the 1st plasmid is pGX10 gDsΔ ST (Accession No: KCCM 10415).
9. The DNA vaccine as set forth in claim 3, wherein
15 the 2nd plasmid contains a base sequence represented by SEQ. ID. No 51.
10. The DNA vaccine as set forth in claim 9, wherein
the 2nd plasmid is pGX10 NS34 (Accession No: KCCM 10417).
- 20 11. The DNA vaccine as set forth in claim 3, wherein
the 3rd plasmid contains a base sequence represented by SEQ. ID. No 52.
- 25 12. The DNA vaccine as set forth in claim 11, wherein
the 3rd plasmid is pGX10 NS5 (Accession No: KCCM

10416).

13. The DNA vaccine as set forth in claim 3, wherein
the 1st plasmid contains a base sequence
5 represented by SEQ. ID. No 50, the 2nd plasmid
contains a base sequence represented by SEQ. ID.
No 51, and the 3rd plasmid contains a base
sequence represented by SEQ. ID. No 52.

10 14. The DNA vaccine as set forth in claim 13, wherein
the 1st plasmid is pGX10 gDsΔ ST (Accession No:
KCCM 10415), the 2nd plasmid is pGX10 NS34
(Accession No: KCCM 10417), and the 3rd plasmid is
pGX10 NS5 (Accession No: KCCM 10416).

15 15. The DNA vaccine as set forth in claim 14, wherein
the pGX10 hIL-12m is additionally contained.

20 16. A recombinant adenovirus vaccine including an
adenovirus containing 2-6 kb of total antigen
gene of HCV.

25 17. The recombinant adenovirus vaccine as set forth
in claim 16, wherein the recombinant adenovirus
vaccine includes an adenovirus containing 2-4 kb

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of total antigen gene of HCV.

18. The recombinant adenovirus vaccine as set forth in claim 16, wherein the recombinant adenovirus vaccine includes all of the 1st adenovirus containing core, E1 and E2 genes, the 2nd adenovirus containing NS3 and NS4 genes, and the 3rd adenovirus containing NS5 gene.

10 19. The recombinant adenovirus vaccine as set forth in claim 18, wherein the 1st adenovirus contains core in which 35-40 amino acids of N-terminal region are eliminated.

15 20. The recombinant adenovirus vaccine as set forth in claim 19, wherein the 1st adenovirus contains core in which 40 amino acids of N-terminal region are eliminated.

20 21. The recombinant adenovirus vaccine as set forth in claim 18, wherein the E2 gene of the 1st adenovirus contains transmembrane domain of E2 protein.

25 22. The recombinant adenovirus vaccine as set forth

in claim 18, wherein the 1st adenovirus contains a base sequence represented by SEQ. ID. No 50.

23. The recombinant adenovirus vaccine as set forth
5 in claim 22, wherein the 1st adenovirus is rAd gDs Δ ST (Accession No: KCCM 10418).

10 24. The recombinant adenovirus vaccine as set forth in claim 18, wherein the 2nd adenovirus contains a base sequence represented by SEQ. ID. No 54.

25. The recombinant adenovirus vaccine as set forth in claim 24, wherein the 2nd adenovirus is rAd gDs NS34 (Accession No: KCCM 10420).

15 26. The recombinant adenovirus vaccine as set forth in claim 18, wherein the 3rd adenovirus contains a base sequence represented by SEQ. ID. No 52.

20 27. The recombinant adenovirus vaccine as set forth in claim 26, wherein the 3rd adenovirus is rAd NS5 (Accession No: KCCM 10419).

25 28. The recombinant adenovirus vaccine as set forth in claim 18, wherein the 1st adenovirus contains a

base sequence represented by SEQ. ID. No 50, the 2nd adenovirus contains a base sequence represented by SEQ. ID. No 54, and the 3rd adenovirus contains a base sequence represented by SEQ. ID. No 52.

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29. The recombinant adenovirus vaccine as set forth in claim 28, wherein the 1st adenovirus is rAd gDs Δ ST (Accession No: KCCM 10418), the 2nd adenovirus is rAd gDs NS34 (Accession No: KCCM 10420), and the 3rd adenovirus is rAd NS5 (Accession No: KCCM 10419).

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30. A vaccine administrating method characterized by enhancing the protective immunity to HCV by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

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20 31. The vaccine administrating method as set forth in claim 30, wherein the priming frequency of the DNA vaccine is 4-5.

32. The vaccine administrating method as set forth in claim 31, wherein the priming frequency of the

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DNA vaccine is 3.

33. A vaccine administrating method characterized by enhancing the protective immunity to HCV by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.

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34. A method to enhance the protective immunity to HCV by increasing CD4+ Th1 immune response by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

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15 35. A method to enhance the protective immunity to HCV by increasing CD4+ Th1 immune response by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.

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36. A method for the prevention and the treatment of hepatitis C, which is characterized by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

37. A method for the prevention and the treatment of hepatitis C, which is characterized by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of
5 claim 13 three times.